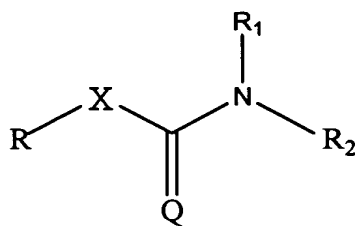


WHAT IS CLAIMED IS:

1. A compound of the formula:

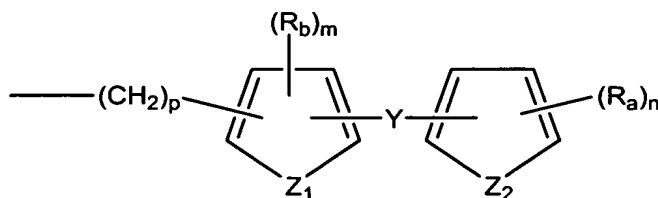


wherein

X is O or S;

Q is O or S;

R is selected from the group consisting of substituted or unsubstituted aryl, substituted or unsubstituted biphenyl, substituted or unsubstituted naphthyl, and substituted or unsubstituted phenyl, substituted or unsubstituted terphenyl, substituted or unsubstituted heteroaryl, and



wherein p is a number from 0 to 3;

m is a number from 0 to 4, and

n is a number from 0 to 5,

Z₁ and Z₂ are same or different and are independently selected from the group consisting of -O-, -S-, -N(R₅)-, -C(R₆)=C(R₇)-, -C(R₆)=N- and -N=C(R₆)- wherein R₅ is selected from H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, aryl, acyl and aroyl; R₆ and R₇ are independently selected from the group consisting of H or R₆ and R₇ optionally may combine to form a saturated or unsaturated carbocyclic or heterocyclic ring, optionally substituted with one or more R_a and R_b groups;

Y is a bond or selected from the group consisting of -O-, -S-, -N(R₅)-, C₁-C₄ alkylene, (Z)- or (E)-ethylene, and cycloalkyl with 3 to 6 carbon atoms;

each R_a and each R_b are independently selected from the group

consisting of H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl or arakyl, substituted arylalkyl or arakyl, ketoalkyl, hydroxyalkyl, aminoalkyl, -CH₂-NR₃R₄, alkoxy, aryloxy, arylalkyloxy, halo, haloalkyl, cyano, hydroxy, nitro, amino, -NR₃R₄, -SR₅, carboxamido, -CONR₃R₄, -O-carboxamido, -O-CO-NR₃R₄, sulfonamido, and -SO₂NR₃R₄, wherein R₃ and R₄ are independently selected from H, alkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl and imino-methylamino and wherein optionally R₃ and R₄ together with the N atom to which they are attached to form a 5-7 membered cyclic ring; and

R₁ and R₂ are independently selected from the group consisting of H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted cycloalkyl, and substituted or unsubstituted cycloheteroalkyl, and optionally R₁ and R₂, may be taken together with the N atom to which they are attached to form a substituted or unsubstituted ring;

and the pharmaceutically acceptable salts thereof.

2. The compound of claim 1, wherein X is O and Q is O.

3. The compound of claim 2, wherein the R is selected from the group consisting of substituted or unsubstituted biphenyl, substituted or unsubstituted naphthyl, substituted or unsubstituted terphenyl, and substituted or unsubstituted cis-stilbyl.

4. The compound of claim 3, wherein R is substituted or unsubstituted biphenyl.

5. The compound of claim 4, wherein at least one of R₁ and R₂ is H.

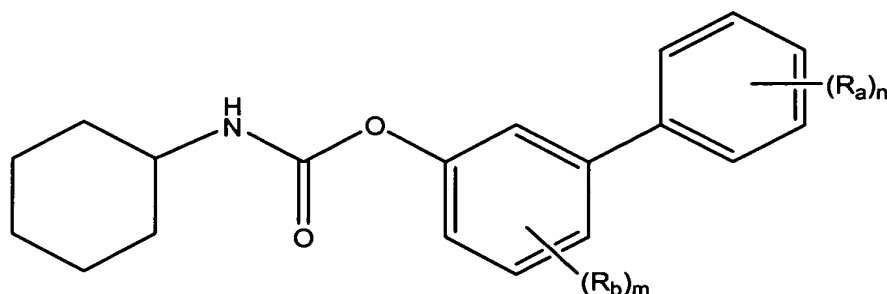
6. The compound of claim 5, wherein R₁ is C₁-C₈ hydrocarbyl selected from alkyl and cycloalkyl and wherein optionally one or more carbons of these hydrocarbyl groups may be substituted with a heteroatom selected from O, N-R₅, and S-R₅.

7. The compound of claim 6, wherein the C₁-C₈ alkyl is methyl, ethyl, *n*-propyl, *i*-propyl, *n*-butyl, *sec*-butyl, *tert*-butyl, pentyl, hexyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclopentenyl, cyclohexenyl, or cycloheptenyl.

10 8. The compound of claim 7, wherein R₁ is cyclohexyl.

11 9. The compound of claim 1, wherein R₁ is selected from the group
12 consisting of piperidinyl, furyl, furfuryl, furanyl, morpholinyl, is 2-,3-,4-piperidinyl, 2- and
13 3-morpholinyl, 2- and 3-furyl, furfuryl, 2- and 3-pyrrol or 2- or 3-thienyl..

14 10. The compound of claim 9, wherein the compound is of the formula:

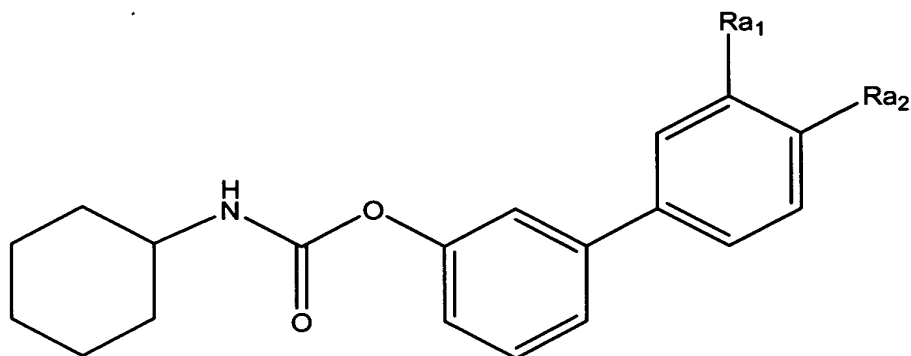


15
16 and m is a number from 0 to 4 and n is a number from 0 to 5;
17 each R_a and each R_b are independently selected from the group consisting of H, alkyl,
18 alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl or arakyl, substituted arylalkyl or
19 arakyl, ketoalkyl, hydroxyalkyl, aminoalkyl, -CH₂-NR₃R₄, alkoxy, aryloxy, halo, haloalkyl,
20 cyano, hydroxy, nitro, amino, -R₃R₄, carboxamido, -ONR₃R₄, -O-carboxamido, -O-CO-
21 NR₃R₄, sulfonamido, -SO₂NR₃R₄;

22 wherein R₃ and R₄ are independently selected from the group consisting of H,
23 alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl and imino-methylamino or R₃
24 and R₄ may combine to form a 5-7 membered cyclic ring.

25 11. The compound of claim 10, wherein the compound is of the formula:

26



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28 wherein Ra_1 and Ra_2 are independently selected from the group consisting of H,
 29 alkyl, alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl or arakyl, substituted
 30 arylalkyl or arakyl, ketoalkyl, hydroxyalkyl, aminoalkyl, $CH_2-NR_3R_4$, alkoxy, aryloxy, halo,
 31 haloalkyl, cyano, hydroxy, nitro, amino, NR_3R_4 , carboxamido, $CONR_3R_4$, O-carboxamido,
 32 O-CO- NR_3R_4 , sulfonamido, and $SO_2NR_3R_4$;

33 wherein R_3 and R_4 are independently selected from H, alkyl, alkenyl, alkynyl,
 34 cycloalkyl, hydroxyalkyl and imino-methylamino or R_3 and R_4 may together with the N atom
 35 to which they are attached combine to form a 5-7 membered cyclic ring.

36 12. The compound of claim 11, wherein at least one of Ra_1 and Ra_2 is H.

37 13. The compound of claim 11, wherein Ra_1 is selected from the group
 38 consisting of $-C(O)NH_2$, $-C(O)CH_3$, or $-(CH_2)_2OH$.

39 14. The compound of claim 11, wherein Ra_1 and Ra_2 are each H.

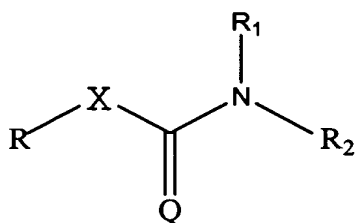
40 15. The compound of claim 1, wherein the compound is selected from the
 41 group consisting of n-butyl 4-benzyloxyphenyl carbamate and N-cyclohexyl 3'-carboxamido
 42 biphenyl-3-yl carbamate and the pharmaceutically acceptable salts thereof.

43 16. The compound of claim 1, wherein the compound has an IC_{50} for
 44 inhibiting the human fatty acid amide hydrolase of less than 1 micromolar.

17. The compound of claim 1, wherein the compound has an IC_{50} for inhibiting the human fatty acid amide hydrolase of less than 10 nanomolar.

18. The compound of claim 1, wherein the molecular weight of the R-X-group is greater than the molecular weight of the $-NR_1R_2$ group.

19. The pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound of the formula:

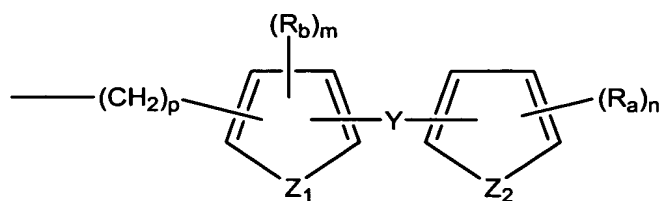


wherein

X is O or S;

Q is O or S;

R is selected from the group consisting of substituted or unsubstituted aryl, substituted or unsubstituted biphenyl, substituted or unsubstituted naphthyl, and substituted or unsubstituted phenyl, substituted or unsubstituted terphenyl, substituted or unsubstituted heteroaryl, and



wherein p is a number from 0 to 3;

m is a number from 0 to 4, and

n is a number from 0 to 5,

Z_1 and Z_2 are same or different and are independently selected from the group consisting of $-O-$, $-S-$, $-N(R_5)-$, $-C(R_6)=C(R_7)-$, $-C(R_6)=N-$ and $-N=C(R_6)-$ wherein R_5 is selected from H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, aryl, acyl and aroyl; R_6 and R_7 are H or R_6 and R_7 optionally may combine to form a saturated or unsaturated

carbocyclic or heterocyclic ring, optionally substituted with one or more R_a and R_b groups;
Y is a bond or selected from the group consisting of -O-, -S-, -N(R_5)-, C_1 - C_4 alkylene, (Z)- or (E)-ethylene, and cycloalkyl with 3 to 6 carbon atoms;
each R_a and each R_b are independently selected from the group consisting of H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl, substituted arylalkyl, ketoalkyl, hydroxyalkyl, aminoalkyl, -CH₂-NR₃R₄, alkoxy, aryloxy, arylalkyloxy, halo, haloalkyl, cyano, hydroxy, nitro, amino, -NR₃R₄, -SR₅, carboxamido, -CONR₃R₄, -O-carboxamido, -O-CO-NR₃R₄, sulfonamido, and -SO₂NR₃R₄, wherein R_3 and R_4 are selected from H, alkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl and imino-methylamino and wherein optionally R_3 and R_4 together with the N atom to which they are attached to form a 5-7 membered cyclic ring; and
 R_1 and R_2 are independently selected from the group consisting of H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted cycloalkyl, and substituted or unsubstituted cycloheteroalkyl, and optionally R_1 and R_2 , may be taken together with the N atom to which they are attached to form a substituted or unsubstituted ring;
and the pharmaceutically acceptable salts thereof.

20. The composition of claim 19, wherein X is O; Q is O; and R is selected from the group consisting of substituted or unsubstituted biphenyl, substituted or unsubstituted naphthyl, substituted or unsubstituted terphenyl, and substituted or unsubstituted cis-stilbyl.

21. The composition of claim 20, wherein R is substituted or unsubstituted biphenyl.

22. The composition of claim 21, wherein at least one of R_1 and R_2 is H.

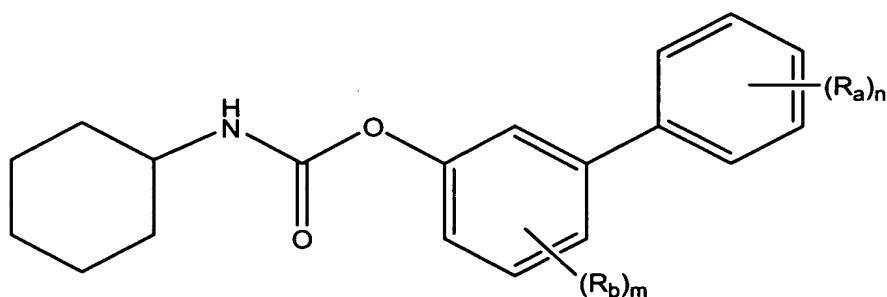
23. The composition of claim 22, wherein R_1 is C_1 - C_8 homoalkyl, C_1 - C_8 heteroalkyl, or C_1 - C_8 cycloalkyl.

24. The composition of claim 23, wherein the C₁-C₈ alkyl is methyl, ethyl, *n*-propyl, *i*-propyl, *n*-butyl, *sec*-butyl, *tert*-butyl, pentyl, hexyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclopentenyl, cyclohexenyl, or cycloheptenyl.

25. The composition of claim 24, wherein R₁ is cyclohexyl.

26. The composition of claim 19, wherein R₁ is a substituted or unsubstituted piperidinyl, furyl, furfuryl, furanyl, thiofuranyl, and morpholinyl.

27. The composition of claim 24, wherein the compound is of the formula:



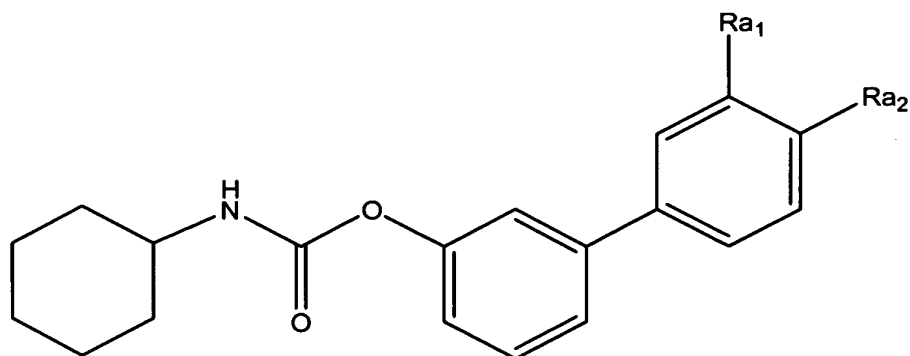
and *m* is a number from 0 to 4 and *n* is a number from 0 to 5;

each R_a and each R_b are independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl, substituted arylalkyl, ketoalkyl, hydroxyalkyl, aminoalkyl, -CH₂-NR₃R₄, alkoxy, aryloxy, halo, haloalkyl, cyano, hydroxy, nitro, amino, -R₃R₄, carboxamido, -ONR₃R₄, -O-carboxamido, -O-CO-NR₃R₄, sulfonamido, -SO₂NR₃R₄; and

wherein R₃ and R₄ are independently selected from the group consisting of H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl and imino-methylamino or R₃ and R₄ may combine to form a 5-7 membered cyclic ring.

28. The composition of claim 10, wherein the compound is of the formula:

25



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27 wherein R_{a1} and R_{a2} are independently selected from the group consisting of H,
 28 alkyl, alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl, substituted arylalkyl,
 29 ketoalkyl, hydroxyalkyl, aminoalkyl, $CH_2-NR_3R_4$, alkoxy, aryloxy, halo, haloalkyl, cyano,
 30 hydroxy, nitro, amino, NR_3R_4 , carboxamido, $CONR_3R_4$, O-carboxamido, O-CO- NR_3R_4 ,
 31 sulfonamido, and $SO_2NR_3R_4$;

32 wherein R_3 and R_4 are independently selected from H, alkyl, alkenyl, alkynyl,
 33 cycloalkyl, hydroxyalkyl and imino-methylamino or R_3 and R_4 may together with the N atom
 34 to which they are attached combine to form a 5-7 membered cyclic ring.

35 29. The composition of claim 28, wherein one of R_{a1} and R_{a2} is H.

36 30. The composition of claim 29, wherein R_{a1} is selected from the group
 37 consisting of $-C(O)NH_2$, $-C(O)CH_3$, or $-(CH_2)_2OH$.

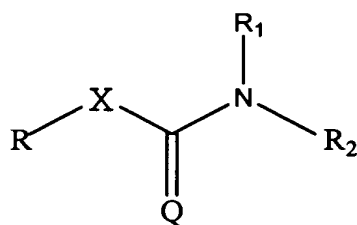
38 31. The composition of claim 30, wherein R_{a1} and R_{a2} are each H.

39 32. The composition of claim 19, wherein the compound is selected from
 40 the group consisting of n-butyl 4-benzyloxyphenyl carbamate and N-cyclohexyl 3'-
 41 carboxamido biphenyl-3-yl carbamate and the pharmaceutically acceptable salts thereof.

42 33. The composition of claim 19, wherein the molecular weight of the R-
 43 X- group is greater than the molecular weight of the $-NR_1R_2$ group.

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34. A method of inhibiting fatty acid amide hydrolase activity in a mammal, said method comprising administering to the mammal a compound of the formula

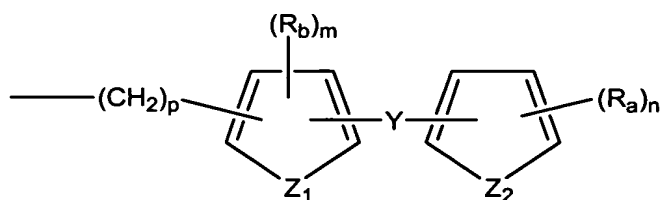


wherein

X is O or S;

Q is O or S;

R is selected from the group consisting of substituted or unsubstituted aryl, substituted or unsubstituted biphenyl, substituted or unsubstituted naphthyl, and substituted or unsubstituted phenyl, substituted or unsubstituted terphenyl, substituted or unsubstituted heteroaryl, and



wherein p is a number from 0 to 3;

m is a number from 0 to 4, and

n is a number from 0 to 5,

Z₁ and Z₂ are same or different and are independently selected from the group consisting of -O-, -S-, -N(R₅)-, -C(R₆)=C(R₇)-, -C(R₆)=N- and -N=C(R₆)- wherein R₅ is selected from H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, aryl, acyl and aroyl; R₆ and R₇ are each H or R₆ and R₇ optionally may combine to form a saturated or unsaturated

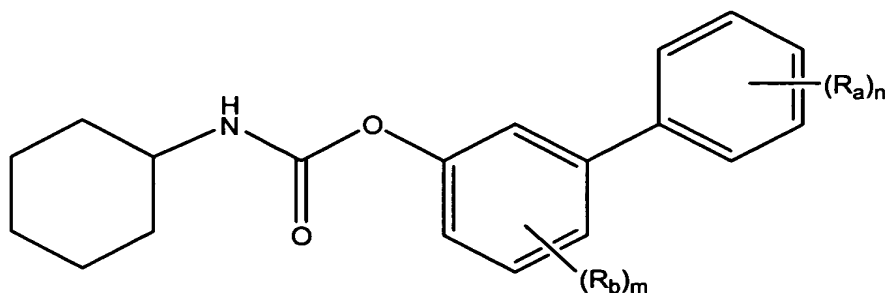
carbocyclic or heterocyclic ring, optionally substituted with one or more R_a and R_b groups;
 Y is a bond or selected from the group consisting of $-O-$, $-S-$, $-N(R_5)-$,
 C_1-C_4 alkylene, (Z)- or (E)-ethylene, and cycloalkyl with 3 to 6 carbon atoms;
each R_a and each R_b are independently selected from the group
consisting of H, alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl,
arylalkyl, substituted arylalkyl, ketoalkyl, hydroxyalkyl, aminoalkyl, $-CH_2-NR_3R_4$, alkoxy,
aryloxy, arylalkyloxy, halo, haloalkyl, cyano, hydroxy, nitro, amino, $-NR_3R_4$, $-SR_5$,
carboxamido, $-CONR_3R_4$, $-O$ -carboxamido, $-O-CO-NR_3R_4$, sulfonamido, and $-SO_2NR_3R_4$,
wherein R_3 and R_4 are independently selected from H, alkyl, alkenyl, alkynyl, cycloalkyl,
hydroxyalkyl and imino-methylamino and wherein optionally R_3 and R_4 together with the N
atom to which they are attached to form a 5-7 membered cyclic ring; and
 R_1 and R_2 are independently selected from the group consisting of H,
substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or
unsubstituted cycloalkyl, and substituted or unsubstituted cycloheteroalkyl, and optionally R_1
and R_2 , may be taken together with the N atom to which they are attached to form a
substituted or unsubstituted ring;
and the pharmaceutically acceptable salts thereof.

35. The method of claim 34, wherein the mammal is human.

36. The method of claim 34, wherein the compound is administered orally.

37. The method of claim 34, wherein R is substituted or unsubstituted biphenyl, R_2 is H, and R_1 is C_1-C_8 homoalkyl, C_1-C_8 heteroalkyl, or C_1-C_8 cycloalkyl.

38. The method of claim 37, wherein the compound is of the formula:



3 and m is a number from 0 to 4 and n is a number from 0 to 5;
4 each R_a and each R_b are independently selected from the group consisting of H, alkyl,
5 alkenyl, alkynyl, cycloalkyl, aryl, substituted aryl, arylalkyl, substituted arylalkyl, ketoalkyl,
6 hydroxyalkyl, aminoalkyl, $-\text{CH}_2-\text{NR}_3\text{R}_4$, alkoxy, aryloxy, halo, haloalkyl, cyano, hydroxy,
7 nitro, amino, $-\text{R}_3\text{R}_4$, carboxamido, $-\text{ONR}_3\text{R}_4$, $-\text{O}$ -carboxamido, $-\text{O}-\text{CO}-\text{NR}_3\text{R}_4$, sulfonamido, $-\text{SO}_2\text{NR}_3\text{R}_4$; and
8
9 wherein R_3 and R_4 are independently selected from the group consisting of H,
10 alkyl, heteroalkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl and imino-methylamino or R_3
11 and R_4 may combine to form a 5-7 membered cyclic ring.